



**GRADUATE PROGRAM IN NEUROSCIENCE UNIFORMED
SERVICES UNIVERSITY OF THE HEALTH SCIENCES
REGULATIONS FOR THE QUALIFYING EXAMINATION
FOR ADVANCEMENT TO CANDIDACY FOR THE PH.D.
DEGREE IN NEUROSCIENCE**

(revised April 2016)

Upon completion of required course work, at a time to be determined by the Program Director, and no later than the end of the second year of study, a comprehensive Qualifying Examination in Neuroscience shall be taken by the student. A Qualifying Examination Committee will administer the examination and evaluate the student's performance. The Qualifying Examination shall consist of a written research proposal and an oral examination. A Qualifying Examination Committee consisting of five faculty members in the Neuroscience Program, with members from at least three academic departments, will be appointed for each student by the Program Director no less than two weeks before the scheduled date for the start of the Qualifying Examination. The timetable for the written and oral components of the examination are as detailed below. Exceptions to this timetable are possible, but must be approved by Neuroscience Program Director and the student's Examination Committee.

1. Written Research Proposal (first 6 weeks):

A research plan describing a preliminary proposal of dissertation research will be formulated and written by each neuroscience graduate student with the advice of the Thesis Advisor, and other members of the Examination Committee as appropriate. The intent of the written preliminary research plan is to provide a focused and scholarly presentation of a research problem and plan of experiments. The preliminary research plan should be directed toward a potential dissertation research project that can be subsequently modified and developed further into a thesis proposal.

The written research proposal will follow the format of the research proposal component of an Individual National Research Service Award application (NIH pre-doctoral fellowship). The forms and instructions are available on the website for the National Institutes of Health (www.nih.gov) under the links for Grants and Funding Opportunities from the Office of Extramural Research for extramural research training through individual fellowships.

The proposal will consist of the following sections of Form PHS 398, to be filled out according to the accompanying instructions for this form:

Description (Abstract of Research Proposal). Limited to one page in length.

Research Plan. A total of 10 pages. This section will be comprised of Specific Aims (one page) and the Research Strategy (9 pages), which includes the Significance, Innovation, and Approach. Inclusion of preliminary studies is only applicable if generated by the student. The Research Strategy section cannot exceed 10 pages, including all tables and figures. A section for Literature Cited should follow but is not considered in this page limit. A description of the

Specific Aims, Significance, Innovation, and Approach extracted from the NIH website is attached at the end of this document.

Within two to four weeks from the start of the examination period, the student will meet with the Examination Committee for evaluation of the Specific Aims of the proposal. The Specific Aims should present the significance of the problem to be addressed, a clearly defined hypothesis, and specific aims that outline experimental approaches to test the hypothesis. The Specific Aims component of the proposal should be generated from the student's interest and inquiry, and may overlap to some degree and be related to the interests of the thesis advisor, but should be an independent endeavor.

The final version of the research proposal must be submitted to the Chairman of the Qualifying Examination Committee within six weeks from the start of the examination period. Committee members are expected to provide an initial evaluation of the research proposal within one week.

If the Examination Committee agrees that the research proposal is of adequate quality, the student will be permitted to take the Oral Examination. If a majority of the Committee members finds the written proposal is unsatisfactory, the student will be deemed to have failed and will not take the Oral Examination.

2. Oral Examination (weeks 8-12):

Within a time period of eight to twelve weeks from the start of the examination period, the student will take the Oral Examination component of the Qualifying Examination. The Oral Examination will test the student's in-depth understanding of the literature related to the research proposal and the ability of the student to explain the proposed techniques and experimental designs. The student should be prepared to discuss expected results, problems, and alternative approaches. Members of the Neuroscience Executive Committee (and other Neuroscience Faculty members, at the discretion of the Program Director) may attend the Oral Examination but only members of the Examination Committee will participate in the questioning of the student.

3. Role of the Qualifying Examination Committee

Immediately following the respective completion of the Written Research Proposal and the Oral Examination, members of the Qualifying Examination Committee will vote on the student's performance. As noted above, the Oral Examination will not proceed until the student has passed the Written Research Proposal portion of the Qualifying Examination. Decisions of the Qualifying Examination Committee will be made by majority vote. Satisfactory performance in both sections of the examination is required to pass the Qualifying Examination. Options available to the Qualifying Examination Committee are:

- (a) The Committee may decide the student has passed the Qualifying Examination after passing both the Written Research Proposal and the Oral Examination.
- (b) The Committee may decide that the Written Research Proposal is not satisfactory. The following options will then be considered:
 - i. Based on concerns from evaluation of the Written Research Proposal, the Committee may decide to table the Oral Examination for continuation within a period not to exceed two weeks. This continuation is not a second attempt in the written component, but rather is an extension of the first examination. The continuation period should direct specific remediation to address the deficiencies of the Written Research Proposal. If the student performs at a satisfactory level in the remediation measures, he or she can advance to the Oral Examination. Upon passing the Oral Examination, the Committee will consider the student to have passed the Qualifying Examination.
 - ii. The Committee may decide that the student has failed the initial attempt in the Written Research Proposal. The Committee will then allow the student a second attempt in the Written Research Proposal portion of the examination. The student should be given six weeks to provide a major revision of the failed version of the proposal or to generate a new proposal. The Program Director may decide to appoint a new Qualifying Examination Committee for the second attempt at the Written Research Proposal. If the student then passes the second attempt at the Written Research Proposal, he or she can advance to the Oral Examination. Upon passing the Oral Examination, the Committee will consider the student to have passed the Qualifying Examination.
- (c) The Committee may decide that the student has failed the Oral Examination. The following options will then be considered:
 - i. The Committee may decide that only the Oral Examination must be re-taken with the same Examination Committee within a four month period. A second Oral Examination shall count as a second attempt at passage of the Qualifying Examination.
 - ii. The Committee may decide that the student must re-take both parts as a complete second attempt of the Qualifying Examination that must be taken within a four month period. The second Examination may proceed with the same Committee or with a new Examination Committee, as decided by the Program Director. The second Examination will proceed according to the same timelines as noted in (b) for decisions regarding the Written Research Proposal.

The Chairman of the Qualifying Examination Committee will provide the Program Director with a written report on the Examination and the Committee's decision. A student who has failed to pass both the initial and second attempt of the Qualifying Examination will be recommended for dismissal from the program.

4. Advancement to Candidacy:

The Ph.D. Degree in Neuroscience requires the student to pass the Qualifying Examination and complete all required course work with a GPA of 3.0 or above, including satisfactory performance in three laboratory rotations. In certain circumstances, the Program Director may decide to allow students who have not completed all required course work or have not completed three laboratory rotations to be advanced to candidacy. To advance to candidacy, a student must work with his or her Thesis Advisor and the Program Director to assemble the Thesis Advisory Committee and submit to the Associate Dean for Graduate Education USUHS Form 641 along with a recommendation for advancement from the Neuroscience Program Director. Full time students in the Ph.D. program must advance to candidacy by the end (August 31) of their second year in the program.

Instructions for the Research Plan abstracted from NIH website:

5.5.2 Specific Aims

State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved.

List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology.

Specific Aims are limited to one page.

5.5.3 Research Strategy

Organize the Research Strategy in the specified order and using the instructions provided below. Start each section with the appropriate section heading—Significance, Innovation, Approach. Cite published experimental details in the Research Strategy section and provide the full reference in the Bibliography and References Cited section (item 5.5.5).

(a) Significance

- Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.
- Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.
- Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

(b) Innovation

- Explain how the application challenges and seeks to shift current research or clinical practice paradigms.
- Describe any novel theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used, and any advantage over existing methodologies, instrumentation or intervention(s).
- Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation or interventions.

(c) Approach

- Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate.
- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.